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ABSTRACT

This paper describes data gathering and analytic procedures, and then presents examples regarding how each fits into the naturalistic research model. From the interactionist perspective, called symbolic interactionism, meaning is of central importance. Naturalistic inquiry is a way of doing social science research which provides the methodological structure for studying meaning as it is generated in human interaction. Data collection techniques in naturalistic inquiry include participant observation, interviewing, and unobtrusive methods (e.g., school related reports and publications, teacher and student produced artifacts). During the analysis processes the intent is to search the data for the social patterns through which the individuals of the studies make sense of interactions with peers. The following levels of analyses are described: (1) domain analysis; (2) taxonomic analysis; (3) componential analysis; and (4) searching for cultural themes. Tied to the processes of analyses are those of interpretation. The interpretation of observed social phenomena is a defining characteristic of naturalistic inquiry. It is concluded that naturalistic science and the positivistic science of the experimental/quasi-experimental models used in education are fundamentally different and that naturalistic inquiry is an approach to educational research that offers enriched understanding of schools and the people who inhabit them. (PN)

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NATURALISTIC METHODS IN EDUCATIONAL RESEARCH

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Naturalistic Methods in Educational Research

My dissertation was one of the first naturalistic studies in the College of Education at the University of Florida. There were no guidelines for such a dissertation and my committee and I spent a lot of energy trying to decide what should and should not be included. When I wrote my original methodology chapter, I included a discussion of the theoretical foundations for naturalistic studies, along with a description of methods for data collection and analysis. My committee reacted to the chapter by basically saying "In a dissertation we want to know what you're going to do, not why you're going to do it." So I rewrote the chapter to meet their expectations.

I have taken this opportunity to rethink the ideas in that original methodology draft. I believe that many educational researchers never confront the whys which are at the foundations of their methods. This goes for quantitative as well as naturalistic researchers.

In this paper, I will describe the data gathering techniques and analytic procedures which I use in my research and present examples from my work to make certain points. Before that, however, I want to spend some time discussing what is often taken-for-granted, the assumptions at the base of the naturalistic way of doing science.

First, I call this methodology "naturalistic inquiry." It might be called ethnography, microethnography, or qualitative research. I am uncomfortable with the term "qualitative research" because it is too general a term. Both "scientific" methods and "artistic" methods fit under the term qualitative research (Eisner, 1981). Using "ethnography" to describe research done by anyone who is not an anthropologist makes anthropologists uncomfortable. As I will discuss, this

kind of research is scientific and not artistic in nature. It is tied to the perspective which Blumer (1969) calls "symbolic interactionism." Blumer, along with other important social researchers including Denzin (1978) and Guba (1978) call the research methods associated with symbolic interactionism "naturalistic inquiry" and that makes sense to me.

It is a premise of this discussion that social researchers in general and educational researchers in particular should, as a part of what they do when they "do research," self-consciously examine their theoretical assumptions concerning the nature of science and what constitutes social reality. Methodological decision making is an important and complex issue for social researchers and the starting place for all "methods" questions ought to be a careful examination of the investigator's metaphysical and epistemological assumptions; that is, how they believe the world is put together and appropriate ways for understanding how it is put together.

Denzin (1978) and others (Becker, 1970; Blumer, 1969; Garfinkel, 1967) have pointed out the importance of uniting the theoretical perspectives of the researcher with the research methodologies employed. Denzin argues that there are unfortunate consequences when theory, methodology, and substantive research interest are fragmented. In his words: "Researcher methods are of little use until they are seen in the light of theoretical perspectives. Substantive specialty is of little use or interest until it is firmly embedded within a theoretical framework and grounded upon sound research strategies" (Denzin, 1978, pp.3-4). A beginning place for examining the theoretical assumptions of naturalistic inquiry is to describe the interactionist perspective.

The Interactionist Perspective

Blumer (1969) has drawn on the work of many preeminent scholars including John Dewey, George Herbert Mead, Charles Horton Cooley, and William James, in articulating a distinctive approach to the study of social behavior. This approach has come to be called "symbolic interactionism." Blumer argues that the interactionist perspective rests on three basic premises:

> (1) Human beings act toward things on the basis of the meanings that the things have for them.
>
> (2) The meaning of such things is derived from or arises out of, the social interaction that one has with one's fellows.
>
> (3) These meanings are handled in, and modified through an interpretive process used by the person in dealing with the things he encounters. (Blumer, 1969, p.2)

The first premise comes from a philosophical orientation known as idealism which, in its simplest form, contends that although the world may have objective substance and consistent relationships among its parts, "the 'world of reality' exists only in human experience and appears only in the form in which human beings 'see' that world" (Blumer, 1969, p. 22). From this perspective, the proper subjects of social inquiry are the maanings which people ascribe to objects and relationships in the world. The second premise identifies social interaction as the vehicle whereby these meanings are generated and the third addresses the process through which the meanings are formed. Schwartz and Jacobs (1979, p. 8) expand:

> From this perspective, social meanings (which direct human behavior) do not inhere in activities, or social objects themselves. Rather, meanings are conferred upon social

context in which these events occur. This emerging gestalt (the "definition of the situation") is seen to result from the interplay of biography, situation, nonverbal communication, and linguistic exchange that characterizes all social interaction.

Blumer (1969) provides a set of "root images" in which symbolic interactionism is grounded. I have abridged these root images as follows.

(1) Human society is active. Any account of the nature of humans in groups must recognize the fact that life in human society is necessarily active. Any view that takes a perspective that social structure is a static thing or a collection of static components ignores the ongoing redefinition of social relationships as people act toward one another.

(2) Social interaction forms human conduct. Some theoretical social perspectives view interaction as merely the medium through which behavior is passed or as a setting for the expression of human conduct. The interactionist view makes interaction (i.e., the acts of individuals as they take account of the actions of one another and form their own actions) the medium through which people construct social meaning. Group life is active and formative in nature.

(3) Objects are the product of symbolic interactions. The world is composed of objects, i.e., things that can be indicated or referred to. Objects can be classified as physical, social, or abstract. The nature of any object, be it a book, a president, or a moral principle, consists of the meaning it has for the person for whom it is an object. Meaning is constructed through the formative interactions described above. Group life is a process in which objects are constantly defined, reinterpreted, transformed, and discarded.

(4) Human beings can be the objects of their own action. Blumer acknowledges Mead's (1934) construct of "self" as important to this idea. Individuals can recognize and adjust their own actions introspectively. The possibility of this internal dialogue challenges the fundamental assumptions of most socio-psychological theories. Humans are self-monitoring, active participants in social interchange. They mold lines of action based on the action of others as well as interpretations of their own perceptions, expectations, and desires.

(5) Individuals interpret the meanings of the actions of others and construct lines of action based on that interpretation. Individuals do not respond to stimuli in a "reflexive" manner. Individuals have to cope with situations in which they are required to act. They process and interpret meanings from those around them and construct lines of action accordingly. They take impressions from others into account as well as processing information from within. Lines of action are refined, abandoned, started, and stopped based on an ongoing evaluation of interactive situations.

(6) Joint action is an interlinkage of the separate acts of the participants. Even though it is constructed through the same interpretive process as individual action, joint action has a character all its own. It is different from any of the acts that enter its formation, or from the mere aggregation of those acts. Each instance of joint action must be formed anew among group members. Every situation is different and each participant brings a new history to every instance of joint action. Joint behavior has the same dynamic, formative quality as individual social behavior.

From the interactionist perspective, "meaning" is of central importance. Meaning is not static cultural knowledge that is passed along from generation

to generation. Interactionists do not deny that there are rules and regulations, norms, and belief systems operating in society. They believe these are "objects" which have importance only when people take them into account and that their importance is always defined differently in specific situations.

Individuals bring all of their interactive history with them into each new social situation, they interpret the behavior of others in those situations, and contribute to the construction of meaning by taking a line of action which takes into account their estimations of the effects of that line on themselves and on the impressions created in others. The construction of meaning, if one accepts the interactionist view, is the substance of social behavior and therefore the substance of social scientific investigation. As Spradley (1980, p. 9) concludes: "If we take meaning seriously, as symbolic interactionists argue we must, it becomes necessary to study meaning carefully. We need a theory of meaning and a specific methodology designed for the investigation of it."

Naturalistic Inquiry

Naturalistic inquiry is a way of doing social science which provides the methodological structure for studying meaning as it is generated in human interaction. Naturalistic investigation is a methodological approach designed to address the study of social behavior within the theoretical assumptions of symbolic interactionism. In this section, naturalistic inquiry as a research approach will be discussed and connected to the interactionist perspective.

The term "naturalistic" signals the central feature of this approach. Naturalistic inquiry "is directed to a given empirical world in its natural, ongoing character instead of a simualtion of such a world or an abstraction from it" (Blumer, 1969, p. 46). Naturalistic research

is conducted in settings in which social behavior naturally occurs. It runs counter to naturalistic sensibilities to perform laboratory experiments or construct artificial environments or manipulate variables and measure effects (Erickson, 1977). The first priority of this kind of science is that it be an empirical investigation of naturally occurring social behavior.

A naturalistic research approach requires that the investigator enter the perceptual world of the social actors being studied. Understanding the meanings generated and shared in that world is the goal of naturalistic inquiry. Meanings are always bound to social interactants. Blumer (1975, p. 325) notes the importance of taking, the participant's perspective in this research approach:

> On the methodological or research side the study of action would have to be made from the position of the actor. Since action is forged by the actor out of what he perceives, interprets, and judges, one would have to see the operating situation as the actor sees it, perceive objects as the actor perceives them, ascertain their meaning in terms of the meaning they have for the actor, and follow the actor's line of conduct as the actor organizes it--in short, one would have to take the role of the actor and see his world from his standpoint.

To render social acts understandable, naturalistic inquiry seeks to get inside the perspectives of those being studied and to reconcile these perspectives with publicly observable social acts. This approach assumes that humans engage in " 'minded,' self-reflective behavior . . . (and) act in ways which reflect their unfolding definitions of themselves and the social situations they confront" (Denzin, 1978, p. 79). Naturalistic

researchers seek to understand the construction of meaning by detailing external, overt social expression and by looking inside the "taken-for-granted" participation structures (see Berger, 1963) individuals use in interaction. Two processes are required to attain this understanding. Blumer (1955, p. 10) referred to these as "a faithful reportorial depiction of (empirical) instances, and an analytical probing into their character." Inherent in the naturalistic approach, then are processes of description and analysis.

Naturalistic investigation is a method of doing science within the assumptions of symbolic interactionism. Denzin provides a list of seven principles which tie symbolic interactionism to the naturalistic research paradigm. These principles offer guideposts for inquiry undertaken from an interactionist perspective.

> The researcher as naturalist is committed to:
>
> 1. Combining a native's symbolic meanings with ongoing patterns of interaction.
> 2. Adopting the perspective, or "attitude," of the acting other and viewing the world from the subject's point of view, while maintaining a distinction between every day and scientific conceptions of reality.
> 3. Linking the native's symbols and definitions with the social relationships and groups that provide those conceptions.
> 4. Recording the group behavior settings of interaction.
> 5. Adopting methods that are capable of reflecting process, change, and stability.
> 6. Viewing the research act as an instance of symbolic interaction.
> 7. Using sensitizing concepts, which point to the construction of interactive, causal explanations of social process.
>
> (Denzin, 1978, p. 78)

In order to maintain the integrity of the synthesis of symbolic interactionism and naturalistic inquiry and in doing so gather data which meet requirements for the processes of description and for analysis, techniques for collecting research data must be of a special variety. Schwartz and Jacobs (1979) use the term "reality reconstruction" to describe inquiry undertaken to "gain access to the member's point of view" (p. 37). These authors identify participant observation and interviewing as the primary tools by which social reality may be scientifically reconstructed. These data collection techniques, as well as the use of unobtrusive measures, represent the research methods of naturalistic research.

Data Collection

I would next like to discuss data collection techniques in naturalistic inquiry and demonstrate the application of the techniques by referring to my own research. The goal of my research has been to provide descriptions and analyses of children's face-to-face behavior with peers within the contexts of their schoolrooms. I have done naturalistic studies in several classrooms. I begin by assuming that each set of children is a "little culture" with its own socially constructed meanings (i.e., its own norms, values, expectations, and sanctions). I begin each study with the broad question "What is the character and nature of student-to-student interaction in this classroom?" I am interested in uncovering the meanings and understandings that children, as participants in the social world of the classroom, use to make sense of and operate within that world.

The scientific investigation of the meanings and understandings held by the social participants requires data of a sort that capture the perspectives of those being studied. As Schwartz and Jacobs (1979, p. 7)

have written: "We want to know what the actors know, see what they see, understand what they understand. As a result our data attempt to describe their vocabularies, their ways of looking, their sense of the important and unimportant, and so on." Collecting data which have the capacity through analysis, to reveal the world as perceived by social participants is a difficult process.

In naturalistic studies, it is useful to think of researchers themselves as data collection instruments (Wolcott, 1976). In my work, no tests, observational checklists, questionaires, or other research "instruments" are utilized to collect data. The core data are field note records of social interactions among the students in the studied classrooms. These field notes are transcriptions of hundreds of "interaction events" (Mehan, 1982) which I have recorded while acting as a participant observer in the classrooms. Other data include records of informal interviews with classroom participants and the transcripts of extensive formal interviews with key informants. Unobtrusive data which provide valuable insight into participant histories, influences on the settings under investigation, and contextual reference points are also collected. Examples of unobtrusive data include: school and district reports concerning demographics, test results, and socio-economic status; official documents such as procedural manuals, pupil progression plans, annual reports to parents, and self-studies; student cumulative records; student produced artifacts such as school work, art, or found items; teacher produced artifacts such as activity samples, plans, and play and work materials provided to children; representational maps; and samples of descriptions of objects and materials such as commercially produced curriculum materials and classroom equipment supplied by the school.

In addition, a history of each research project has been kept in the form of a journal.

I will next describe participant observation, interviewing, and unobtrusive methods as data collection techniques. I will discuss how each fits into the naturalistic research model.

The term participant observation is most often associated with the field work of cultural anthropologists. These field anthropologists or ethnographers have historically studied exotic or primitive cultural groups by spending extended periods of time living within the groups. Their goals are to come to understand the culture being studied from the perspective of the participants, the cultural insiders. Anthropologist-ethnographers participate as members of the culture to some degree and usually keep careful written records or field notes of their experiences within the culture. The field notes along with interviews and artifact collection become the data of the ethnography and the source of anthropological interpretations (see Fried, 1972; Pelto, 1970).

Anthropologists are not the only researchers using participant observation strategies. Participant observation as a research technique has been used successfully by educational researchers and other social scientists interested in studying the construction of social meanings. The rationale for using participant observation as a data collection strategy is much the same among anthropologists, socio-linguists, qualitative sociologists, or educational researchers. Participant observation provides a methodological avenue into the social knowledge and processes by which participants negotiate meaning. In their efforts to "reconstruct the reality" of social interactants, participant observers attempt to enter the perceptions and definitions of those they study, to acquire "member's knowledge and consequently understand from the

participants' point of view what motivated the participants to do what the researcher has observed them doing and what these acts meant to them at the time" (Schwartz and Jacobs, 1979, p. 8). Some discussion of how participant observation allows insight into participant perspectives is in order.

An assumption basic to the use of participant observation as a scientific tool is that individuals acquire, as a function of their participation in social interactions, an elaborate complex of understandings about how these interactions are constructed. These understandings are not instinctual or inherited. They are cognitive in nature and must be learned through cultural experience. The naturalistic scientist steps into the participant observer role in an effort to learn the cultural knowledge their research subjects have learned in the same way their subjects have learned it (Spradley, 1980). Children learn their culture by watching and listening to others and making inferences about meanings, norms, and patterns of behavior. Gradually they internalize the cultural knowledge needed to operate in their society. Adults in new social situations make observations of unfamiliar surroundings, infer meanings and expectations, make behavioral attempts within their inferred meaning structures, take in new information based on the results of their attempts, and continue this process until what was at first a tentative, self-concious process becomes second nature. Hymes (1982) describes this process as the "ability to learn ethnographically" and ties this universal ability to the naturalistic research act: "Without the general human capacity to learn culture, the inquiry would be impossible" (p. 29). On learning the social knowledge of research subjects, Frake (1964, p. 133) notes: "This should not be an impossible feat: our subjects themselves accomplished it when they learned their

culture. They had no mysterious avenues of perception not available to us as investigators." Hood, McDermott, and Cole (1980, p. 158) offer this summary: "People learn about themselves and about each other by the work they do constructing environments for acting in the world, and this is how we must come to know them as well."

As participant observers take on the perspectives of their subjects, they do not want to become so involved that the cultural knowledge they are learning becomes second nature or reaches the level of tacit understanding with them. As Berger and Kellner (1981, p. 34) explain, for the social scientist "familiarity breeds inattention." The extreme form of researcher involvement with subjects is known as "going native." In my work, there is little danger that I will become one of the children. However, I follow the advice of Denzin (1978) and Johnson (1975) by using bracketing techniques in my field notes and maintained a research journal in an effort to monitor changes in my perspective as I am collecting participant observation data.

Within the research techniques known as participant observation, there are a variety of gradations based on the relationship between the degree of participation as opposed to the degree of observation. Spradley (1980) uses the "degree of involvement" to distinguish five types of participation: complete, active, moderate, passive, and non-participation. The researcher role I take might most accurately be classified as passive participant observer. As Spradley (1980, p. 59) describes passive participation, the researcher "is present at the scene of the action but does not participate or interact with the other people to any great extent." My research is focused on interaction constructed by children in the classroom. Interaction between adults and children is of secondary interest in the work. Since I am an adult, I do not

attempt the role of researcher as peer but enter the research setting in a passive role. Another important consideration lies in the research intent to capture child-to-child interaction in the naturally occurring contexts of the classroom. Every effort is made to limit involvement with participants in order to reduce the effect of my presence in the room; hence, the passive role.

The dilemma of trying to capture "naturally" occurring behavior in the unnatural context created by the presence of a researcher has been termed by Labov (1972) the "observer's paradox." It is my belief, based on hundreds of hours of classroom observation, that if the observer consistently avoids all contact with children they soon forget his presence. This means that eye contact is always avoided, that comments about the researcher are never reacted to, that plays for attention are always ignored, and that requests for assistance (see Rist, 1975) are never honored.

It is important to remember that, even though careful plans are made to control the involvement of the researcher with classroom participants, observations, analysis, and reported findings must take the researcher's presence into account. The study must be viewed and reported as research into a "setting with a researcher present" (Bogdan and Biklen, 1982, p. 43).

The participant observation I do follows a pattern described in a model Spradley (1980) calls the "Developmental Research Sequence" (DRS). The DRS is a cyclic process of asking questions, collecting data, making a record of the data, analyzing the data, asking more questions based on that analysis, and the cycle continues. The researcher begins the observation-analysis cycle by making broad descriptive observations in an effort to capture the general contexts of the research scene and soon

after begins to analyze the data for patterns and relationships. The researcher uses information gathered in early analysis to identify questions to be taken to the research scene which will focus future observations. The cycle of observation-analysis-more focused observation continues throughout the data collection phase and analysis continues after the researcher leaves the scene and as the report of findings is written. Analysis will be described and discussed in more detail later.

Participant interviewing, is the second research technique associated with naturalistic studies (Blumer, 1969; Denzin, 1978; Schwartz and Jacobs, 1979). By interviewing the participants, an extra dimension can be added to the data collected as participant observer. Remembering that the goal of naturalistic inquiry is to uncover the perspectives of social participants, the added dimension provided by interview data can be very important.

In my work, I use both "formal" and "informal" (Spradley, 1980) interview techniques. Formal interviews, that is, interviews which occur at appointed times and after specific requests, are conducted with the classroom teacher, and, in the study I am just completing, with the children at the end of the participant observation period. I also use informal interviews, in which classroom adults are asked questions during the course of participant observation. Both formal and informal interviews take a form which Spradley (1979; 1980) calls "ethnographic." In ethnographic interviews, the interview situation is taken to be a dynamic interpersonal social event in its own right. The interviewers may enter the interview situation with certain questions in mind but, they must be sensitive to questions which emerge from the interview interaction, the social context being considered, and the degree of

rapport which has been established. Relevant questions develop from the interviewers' growing awareness of participant perspectives. Schwartz and Jacobs (1979) summarize: "In short, appropriate or relevant questions are seen to emerge from the process of interaction that occurs between the interviewer and interviewees."

It should be pointed out that there is a close relationship among participant observation, analysis, and interviewing procedures. The same questions that emerge from analysis of field data and guide further observations are questions which should be put to participant informants in interview settings (Spradley, 1980). McDermott (1982) in his review of Frake (1980) discusses the importance of bringing "context sensitivity" to ethnographic questioning. Cicourel (1974) contends that interviewers cannot interpret respondents talk beyond the most superficial level unless the questioners have access to the meanings and nuances which are particular to the interviewee's background and experiences, the "ethnographic context" of the interview. Interviewing is also connected to the participant observation in that information gathered from both sources is used for cross checking on the existence and/or extent of social patterns or relationships discovered in the social scene, a process Denzin (1978) calls "methodological triangulation."

Gathering unobtrusive data is the third data collection tool of naturalistic research. Unobtrusive data refers to the products of "any measure of observation that directly removes the observer from the set of interactions or events being studied" (Denzin, 1978, p. 256). In other words, unobtrusive data collection is the gathering of "indicators" such as official documents, children's school work, or any nonreactive measure of group or individual life (Schwartz and Jacobs, 1979; Wolcott, 1976).

The materials collected as the unobtrusive data of my studies and the collection process have been detailed above. The great advantage of this type of data is that its collection does not influence the phenomena under direct investigation. The primary utility of unobtrusive measures for me has been in establishing contextual backgrounds for the schools and classroom participants and in providing an addition source of methodological triangulation.

Analysis

I would next like to focus on the analysis processes of naturalistic research. There is an artificiality which can distort the "whole" of the research process when data collection, analysis, interpretation, and theoretical influences are discussed as separate and distinct elements. In fact, when these "pieces" of the naturalistic research act are applied, they always overlap and are often indistinguishable. Data collection always includes an interpretive element (Schwartz and Schwartz, 1955) and is influenced by the researcher's theoretical assumptions (Berger and Kellner, 1982). Within the model used in my work; analysis and participant observation are accomplished not in distinct linear stages but in an ongoing cycle.

The Spradley (1980) DRS model is a useful guide. I use it as a set of signposts to guide me through the processes of data analysis. Spradley breaks the research sequence into twelve steps, most of which have an analytic quality. I do not approach data analysis with the intention of applying the twelve steps of the DRS. The intent is rather to search the data for the social patterns through which the children of the studies make sense of interactions with peers. By

selectively applying levels of analysis suggested by the Spradley model, the accomplishment of this goal is made more feasible.

As Spradley (1980, p. 85) explains, "Analysis of any kind involves a way of thinking. It refers to the systemic examination of something to determine its parts, the relationship among its parts, and their relationship to the whole." The DRS provides a structure for the systematic examination of social behavior as recorded in field notes. Spradley identifies several levels of analytic inquiry including: domain analysis, taxonomic analysis, componential analysis, and searching for cultural themes. Each of these levels of analysis are used in my work and will be briefly described below:

1. Domain analysis is a search for categories of meaning which exist in the cultural scene. To bring these meaning systems, which are usually reserved for the tacit understanding of the participants, to the surface, the researcher systematically asks questions of the field note data which have been collected. These questions help the researcher discover patterns and relationships in the scene under investigation. Such questions include the following: Are there kinds of things here? Are there ways to do things? Parts of things? Reasons for things? Uses for things? Steps in doing things?

2. Taxonomic analysis is a search for the ways in which <u>domains</u> are organized and related to one another. Questions formed for this type of analysis are comparison kinds of questions which get at similarities and differences within and among domains. The product of this analysis is a diagramatic representation of the cultural scene being investigated. Taxonomic analysis is always tentative and continues as more data are collected in the field.

3. "Componential analysis is the systematic search for the attributes (components of meaning) associated with cultural categories" (Spradley, 1980, p. 131). This level of analysis involves an eight step process for searching for contrasts, sorting these out, grouping them together as dimensions of contrast, and entering all this information onto a paradigm. Componential analysis is applied to those domains that emerge as central to the goals of the research.

4. Searching for cultural themes is a level of analysis which seeks to tie findings from the analyses already completed to domains which apply across social groups, that is, to "cultural themes" (Opler, 1945). Themes may be conceptualized as unifying domains which tie the parts of the scene together and make sense of it in relationship to broader social contexts. Spradley identifies several strategies for making a theme analysis, many of which have been useful in my work.

Tied to the processes of analysis are those of interpretation. The interpretaion of observed social phenomena is a defining characteristic of naturalistic inquiry. The goals of this type of research always involve getting at inner perspectives, understanding, or what Weber (1964) called <u>verstehen</u> (see Rist, 1977). The process of gaining insight into the meaning structures of others is one involving careful observation. description, <u>Interpretation</u>, and analysis. Interpretation is important throughout the research process and not confined to analysis. Schwartz and Schwartz (1955) point out that recording events in field notes is an essentially interpretive process. They describe what happens between the occurrence of an event and its recording as follows;

> The investigator re-creates, or attempts to re-create, the social field in his imagination, in all its dimensions, on a perceptual

and feeling level. He takes the role of all the other people in the situation and tries to evoke in himself the feelings and thoughts and actions they experienced at the time the event occurred. He assesses the accuracy of this role-taking and then takes his own role, as he was reacting during the event, and examines the effect of his reaction on his perceptions of the situation. Finally, he tries to integrate his own perceptions of the situation with those of the participants and arrives at one or more pictures of the event which are recorded as data (Schwartz and Schwartz, 1955, p. 345).

Data recording becomes an alternation between interpreting and monitoring one's interpretations.

Interpretation always involves making inferences. As discussed earlier, individuals learn the social norms, rules, and assumptions necessary for participation in particular situations by making inferences. These individuals and their social partners use three types of information to make "cultural inferences:" (1) They observe what people do; (2) They observe things people make and use; and (3) They listen to what people say (Spradley, 1980). Naturalistic scientists employ the same processes of inference "to go beyond what is seen and heard to find out what people know" (Spradley, 1980, p. 10). In order for researchers to interpret social knowledge which is tacitly held by subjects, the researchers will necessarily be involved in making cultural inferences. It is important to point out that the subjectivity associated with making inferences is, in the naturalistic model, counterbalanced by application of what Denzin (1978), after Robinson (1951), has called "analytic induction."

The cultural inferences formed by researchers are at first only

hypotheses which must be tested over and over again to determine if they, in fact, represent the meaning structures of participants. The processes of analytic induction through which relationships and patterns are verified involves the following steps (abstracted in Denzin, 1978, p. 192):

1. A rough definition of the phenomenon to be explained is formulated.
2. A hypothetical explanation of that phenomenon is formulated.
3. One case is studied in light of the hypothesis, with the object of determining whether or not the hypothesis fits the facts in that case.
4. If the hypothesis does not fit the facts, either the hypothesis is reformulated or the phenomenon to be explained is redefined so that the case is excluded.
5. Practical certainty may be attained after a small number of cases have been examined, but the discovery of negative cases disproves the explanation and requires a reformulation.
6. This procedure of examining cases, redefining the phenomenon, and reformulating the hypotheses is continued until a universal relationship is established, each negative case calling for a redefinition or a reformulation (see Robinson, 1951, p. 813).

The thrust of this strategy addresses the basic concern of social scientists (e.g., Becker, 1961; Berger and Kellner, 1981; Blumer, 1969; Lindesmith, 1952) that research findings be empirically based. Analysis must always lead the researcher back to a "renewed examination of the empirical world" (Blumer, 1969, p. 48) and a systematic search for negative evidence (Becker, 1961; Lindesmith, 1952). As Berger and Kellner (1982, p. 46) summarize: "Sociological interpreatation is not a philosophical enterprise. It is always subject to testing by empirical evidence.

Sociological propositions are never axioms, but empirically falsifiable hypotheses."

Let me conclude with a few comments on the selection of naturalistic inquiry as a method of doing educational research. It has become popular to suggest that as educational researchers we should develop expertise in both traditional, quantitative methods and naturalistic or other qualitative methods, then let our research questions dictate which methodology ought to be used (e.g., Shulman, 1981). I believe this call for methodological utility ignores the essential differences of positivistic and naturalistic ways of doing science.

It is evident to me that naturalistic science and the positivistic science of the experimental/quasi-experimental models we use in education are fundamentally different. I believe they qualify as different scientific paradigms (Kuhn, 1970). They rest on opposing conceptions of reality and opposing assumptions about how reality can be scientifically known. Since they are ontologically and epistemologically opposite, it seems to me that, when researchers claim to be able to select methods from one paradigm or the other, they are ignoring the logical inconsistency in that claim. Either they believe the world to be studied is constructed in social interaction, in which case the function of scientific inquiry is the reconstruction of social realities; or they believe in an objective world which has order independent of human perceptions, which means the job of science is the discovery of that order. I do not conceptualize naturalistic inquiry as a new set of tricks to be added to the repertoires of educational researchers. I believe it is an entirely different approach to educational research and one that offers enriched understandings of schools and the people who inhabit them.

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